SOUTH DAKOTA ENERGY EFFICIENCY PLAN - 2017 Otter Tail Power Company Net Benefits

APPENDIX A, TABLE 2 (Revised)

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	Approved Savings, Costs, and Benefits				Acutal Savings, Costs, and Benefits				
	Energy Savings	Proposed	Total	Utility Net	Energy Savings	Actual	Total	Utility Net	
	(kWh)	Budget	Benefits	Benefits	(kWh)	Expenses	Benefits	Benefits	
Residential									
Air Conditioning Control	18,328	\$14,000	\$47,294	\$33,294	19,537	\$9,326	\$50,415	\$41,090	
Air Source Heat Pumps	298,204	\$20,000	\$169,043	\$149,043	310,718	\$20,086	\$170,113	\$150,027	
Geothermal Heat Pumps	321,779	\$30,000	\$228,330	\$198,330	153,739	\$12,408	\$114,782	\$102,374	
Lighting	33,209	\$11,000	\$18,149	\$7,149	130,948	\$14,652	\$58,861	\$44,209	
Total - Residential	671,519	\$75,000	\$462,816	\$387,816	614,942	\$56,471	\$394,171	\$337,700	
Commercial									
Air Source Heat Pumps	291,112	\$18,000	\$147,829	\$129,829	57,504	\$4,163	\$26,733	\$22,570	
Custom Efficiency Projects	130,729	\$40,000	\$119,087	\$79,087	1,277,412	\$60,171	\$685,620	\$625,448	
Drive Power	1,013,339	\$79,000	\$542,416	\$463,416	622,586	\$78,878	\$344,385	\$265,508	
Geothermal Heat Pumps	730,265	\$73,000	\$497,382	\$424,382	249,507	\$21,882	\$189,608	\$167,726	
Lighting	957,826	\$127,000	\$594,692	\$467,692	2,119,879	\$217,741	\$1,270,574	\$1,052,832	
Total - Commercial	3,123,271	\$337,000	\$1,901,406	\$1,564,406	4,326,888	\$382,835	\$2,516,919	\$2,134,084	
Total - Direct Impact	3,794,791	\$412,000	\$2,364,222	\$1,952,222	4,941,830	\$439,306	\$2,911,090	\$2,471,784	
Indirect Impact									
Advertising & Education		\$12,000	\$0	(\$12,000)		\$11,937	\$0	(\$11,937)	
EEP Development - 2017		\$25,000	\$0	(\$25,000)		\$12,114	\$0	(\$12,114)	
Total - Indirect Impact		\$37,000	\$0	(\$37,000)		\$24,051	\$0	(\$24,051)	
Total - All Programs (Including Development)	3,794,791	\$449,000	\$2,364,222	\$1,915,222	4,941,830	\$463,357	\$2,911,090	\$2,447,733	

Benefit/Cost Results 2017 SD EEP

	AS FILED	ACTUAL 2017
Data discounted to 2017	Utility Test	Utility Test
NPV Method: Midyear		
Discount Rates:	8.50%	8.50%
Benefit/Cost Ratio	5.27	6.28
Total Costs	\$449,000	\$463,357
Total Benefits	\$2,364,222	\$2,911,090
Net Benefits	\$1,915,222	\$2,447,733
Total Benefits:		
Utility Elec. Production Cost Decr	\$1,307,538	\$1,608,642
Utility Ancillary	\$0	\$0
Utility Generation Cap. Credit	\$537,440	\$717,483
Utility Transmission & Distrib. Credit	\$519,245	\$584,965
Total Benefits	\$2,364,222	\$2,911,090
Total Costs:		
Utility Rebates Paid	\$297,743	\$356,398
Utility Fixed Admin Cost	\$151,257	\$106,959
Total Costs	\$449,000	\$463,357

South Dakota Docket No. EL18-022 Attachment 1 to DR SD-PUC-01-05

APPENDIX A, TABLE 2 (Revised)

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SOUTH DAKOTA ENERGY EFFICIENCY PLAN - 2017 Otter Tail Power Company Benefit/Cost Ratios

APPENDIX A, TABLE 3 (Revised)

Utility Test	Total Resource Test	Ratepayer Impact Test		Participant					
Utility Test	Test	Immost Test							
		impact Test	Societal Test	Test	Utility Test	TRC Test	RIM Test	Societal Test	Participant Test
					Ratio	Ratio	Ratio	Ratio	Ratio
3.38	3.38	3.02	3.38	inf.	5.41	5.41	4.66	5.41	inf.
8.45	1.81	0.51	2.90	6.18	8.47	1.49	0.58	2.39	4.38
7.61	1.61	0.62	2.55	4.34	9.25	1.26	0.78	1.99	2.65
1.65	4.27	0.43	6.37	inf.	4.02	4.43	0.50	6.59	23.17
6.17	1.83	0.61	2.79	5.32	6.98	1.73	0.69	2.60	4.31
8.21	1.61	0.57	2.40	3.18	6.42	1.20	0.58	1.79	2.30
2.98	0.71	0.78	1.07	0.96	11.39	5.15	0.92	6.67	5.85
6.87	2.98	0.75	4.45	4.61	4.37	2.00	0.78	2.98	2.85
6.81	1.35	0.72	1.99	2.03	8.67	1.68	0.92	2.47	1.95
4.68	1.63	0.81	2.39	2.23	5.84	10.82	0.87	16.17	17.80
5.64	1.62	0.74	2.40	2.42	6.57	4.52	0.87	6.49	5.91
5.27	1.61	0.70	2.40	2.91	6.28	3.62	0.83	5.22	5.45
	8.45 7.61 1.65 6.17 8.21 2.98 6.87 6.81 4.68 5.64	8.45 1.81 7.61 1.61 1.65 4.27 6.17 1.83 8.21 1.61 2.98 0.71 6.87 2.98 6.81 1.35 4.68 1.63 5.64 1.62	8.45 1.81 0.51 7.61 1.61 0.62 1.65 4.27 0.43 6.17 1.83 0.61 8.21 1.61 0.57 2.98 0.71 0.78 6.87 2.98 0.75 6.81 1.35 0.72 4.68 1.63 0.81 5.64 1.62 0.74	8.45 1.81 0.51 2.90 7.61 1.61 0.62 2.55 1.65 4.27 0.43 6.37 6.17 1.83 0.61 2.79 8.21 1.61 0.57 2.40 2.98 0.71 0.78 1.07 6.87 2.98 0.75 4.45 6.81 1.35 0.72 1.99 4.68 1.63 0.81 2.39 5.64 1.62 0.74 2.40	8.45 1.81 0.51 2.90 6.18 7.61 1.61 0.62 2.55 4.34 1.65 4.27 0.43 6.37 inf. 6.17 1.83 0.61 2.79 5.32 8.21 1.61 0.57 2.40 3.18 2.98 0.71 0.78 1.07 0.96 6.87 2.98 0.75 4.45 4.61 6.81 1.35 0.72 1.99 2.03 4.68 1.63 0.81 2.39 2.23 5.64 1.62 0.74 2.40 2.42	8.45 1.81 0.51 2.90 6.18 8.47 7.61 1.61 0.62 2.55 4.34 9.25 1.65 4.27 0.43 6.37 inf. 4.02 6.17 1.83 0.61 2.79 5.32 6.98 8.21 1.61 0.57 2.40 3.18 6.42 2.98 0.71 0.78 1.07 0.96 11.39 6.87 2.98 0.75 4.45 4.61 4.37 6.81 1.35 0.72 1.99 2.03 8.67 4.68 1.63 0.81 2.39 2.23 5.84 5.64 1.62 0.74 2.40 2.42 6.57	8.45 1.81 0.51 2.90 6.18 8.47 1.49 7.61 1.61 0.62 2.55 4.34 9.25 1.26 1.65 4.27 0.43 6.37 inf. 4.02 4.43 6.17 1.83 0.61 2.79 5.32 6.98 1.73 8.21 1.61 0.57 2.40 3.18 6.42 1.20 2.98 0.71 0.78 1.07 0.96 11.39 5.15 6.87 2.98 0.75 4.45 4.61 4.37 2.00 6.81 1.35 0.72 1.99 2.03 8.67 1.68 4.68 1.63 0.81 2.39 2.23 5.84 10.82 5.64 1.62 0.74 2.40 2.42 6.57 4.52	8.45 1.81 0.51 2.90 6.18 8.47 1.49 0.58 7.61 1.61 0.62 2.55 4.34 9.25 1.26 0.78 1.65 4.27 0.43 6.37 inf. 4.02 4.43 0.50 6.17 1.83 0.61 2.79 5.32 6.98 1.73 0.69 8.21 1.61 0.57 2.40 3.18 6.42 1.20 0.58 2.98 0.71 0.78 1.07 0.96 11.39 5.15 0.92 6.87 2.98 0.75 4.45 4.61 4.37 2.00 0.78 6.81 1.35 0.72 1.99 2.03 8.67 1.68 0.92 4.68 1.63 0.81 2.39 2.23 5.84 10.82 0.87 5.64 1.62 0.74 2.40 2.42 6.57 4.52 0.87	8.45 1.81 0.51 2.90 6.18 8.47 1.49 0.58 2.39 7.61 1.61 0.62 2.55 4.34 9.25 1.26 0.78 1.99 1.65 4.27 0.43 6.37 inf. 4.02 4.43 0.50 6.59 6.17 1.83 0.61 2.79 5.32 6.98 1.73 0.69 2.60 8.21 1.61 0.57 2.40 3.18 6.42 1.20 0.58 1.79 2.98 0.71 0.78 1.07 0.96 11.39 5.15 0.92 6.67 6.87 2.98 0.75 4.45 4.61 4.37 2.00 0.78 2.98 6.81 1.35 0.72 1.99 2.03 8.67 1.68 0.92 2.47 4.68 1.63 0.81 2.39 2.23 5.84 10.82 0.87 16.17 5.64 1.62 0.74 2.40 2.42 6.57 4.52 0.87 6.49